CLAIM LISTING

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Original) A gas sensor comprising:

a resonator comprising a dielectric material, the resonator further including a layer comprising adsorptive nanostructures selected from the group consisting of degassed carbon nanotubes, activated carbon fibers, and adsorptive nanowires, wherein the dielectric material is in electrical communication with the layer comprising the adsorptive nanostructures such that the effective resonant frequency of the resonator depends upon the dielectric constant of the dielectric material and also depends upon the dielectric constant of the layer comprising the adsorptive nanostructures.

2. (Original) The gas sensor of claim 1 further comprising an analyzer in communication with the resonator for obtaining the resonant frequency of the resonator.

3. (Original) The gas sensor of claim 2, wherein the analyzer is in hard-wire communication with the resonator.

4. (Original) The gas sensor of claim 2, wherein the analyzer is in remote access communication with the resonator.

5. (Original) The gas sensor of claim 4, wherein the analyzer is in communication with the resonator via radio frequency signals.

6. (Original) The gas sensor of claim 1, wherein the resonator is a micro-strip circuit board resonator.

7. (Original) The gas sensor of claim 1, wherein the adsorptive nanostructures are degassed carbon nanotubes.

8. (Original) The gas sensor of claim 7, wherein the degassed carbon nanotubes comprise single-walled carbon nanotubes.

9. (Original) The gas sensor of claim 7, wherein the degassed carbon nanotubes comprise multi-walled carbon nanotubes.

10. (Original) The gas sensor of claim 1, wherein the layer comprising adsorptive nanostructures is about 2μm in depth.

11-43. Cancelled.

44. (New) A gas sensor comprising:

a resonator comprising a dielectric material, the resonator further including a layer comprising adsorptive degassed carbon nanotubes, wherein the dielectric material is in electrical communication with the layer comprising the degassed carbon nanotubes such that the effective resonant frequency of the resonator depends upon the dielectric constant of the dielectric material and also depends upon the dielectric constant of the layer comprising the degassed carbon nanotubes, wherein the sensor indicates a measurable variation in resonant frequency of the resonator upon exposure to either polar or non-polar gases.

45. (New) The gas sensor of claim 44 further comprising an analyzer in communication with the resonator for obtaining the resonant frequency of the resonator.

46. (New) The gas sensor of claim 45, wherein the analyzer is in hard-wire communication with the resonator.

47. (New) The gas sensor of claim 45, wherein the analyzer is in remote access communication with the resonator.

48. (New) The gas sensor of claim 44, wherein the resonator is a micro-strip circuit board resonator.

49. (New) The gas sensor of claim 44, wherein the degassed carbon nanotubes comprise single-walled carbon nanotubes.

50. (New) The gas sensor of claim 44, wherein the degassed carbon nanotubes comprise multi-walled carbon nanotubes.

51. (New) The gas sensor of claim 44, wherein the layer comprising degassed carbon nanotubes is about 2μm in depth.

52. (New) A gas sensor comprising:

a resonator comprising a dielectric material, the resonator further including a layer comprising adsorptive activated carbon nanofibers, wherein the dielectric material is in electrical communication with the layer comprising the activated carbon nanofibers such that the effective resonant frequency of the resonator depends upon the dielectric constant of the dielectric material and also depends upon the dielectric constant of the layer comprising the activated carbon nanofibers.

53. (New) The gas sensor of claim 52 further comprising an analyzer in communication with the resonator for obtaining the resonant frequency of the resonator.

54. (New) The gas sensor of claim 53, wherein the analyzer is in hard-wire communication with the resonator.

55. (New) The gas sensor of claim 53, wherein the analyzer is in remote access communication with the resonator.

56. (New) The gas sensor of claim 52, wherein the resonator is a micro-strip circuit board resonator.

57. (New) The gas sensor of claim 52, wherein the layer comprising activated carbon nanofibers is about 2μm in depth.

58. (New) A gas sensor comprising:

a resonator comprising a dielectric material, the resonator further including a layer comprising adsorptive nanowires, wherein the dielectric material is in electrical communication with the layer comprising the adsorptive nanowires such that the effective resonant frequency of the resonator depends upon the dielectric constant of the dielectric material and also depends upon the dielectric constant of the layer comprising the adsorptive nanowires.

59. (New) The gas sensor of claim 58 further comprising an analyzer in communication with the resonator for obtaining the resonant frequency of the resonator.

60. (New) The gas sensor of claim 59, wherein the analyzer is in hard-wire communication with the resonator.

61. (New) The gas sensor of claim 59, wherein the analyzer is in remote access communication with the resonator.

62. (New) The gas sensor of claim 58, wherein the resonator is a micro-strip circuit board resonator.

63. (New) The gas sensor of claim 58, wherein the layer comprising degassed carbon nanotubes is about 2μm in depth.